

WHAT IS CLAIMED IS:

1. A packet forwarding system, comprising:

an input unit for inputting first data in first units of transmission;

a packet memory management unit for assembling the first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out a pointer of an IP packet header and a pointer of an IP packet trailer connected to the IP packet header;

a header processing unit for deciding a packet classification and a transmission destination by using the IP packet header, and re-transmitting to the packet memory management unit the pointer of the IP packet trailer connected to the IP packet header; and

an output unit for dividing the IP packet trailer read from the packet memory management unit into second data in second units of transmission based on the pointer of the IP packet header transmitted from the header processing unit and the pointer of the IP packet trailer connected to the IP packet header, and outputting the second data to a channel.

2. The packet forwarding system as claimed in claim 1, wherein the packet memory management unit includes:

a packet generator for generating the IP packet from the first data;

the packet memory comprising plural buffers loading the IP packet, and the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header;

a transmission header queue for loading the pointer of the IP packet header corresponding to a transmission order of the IP packet; and

a controller for reading from the packet memory the pointers of the IP packet header and the IP packet trailer connected to the IP packet header, according to the transmission order determined by the transmission header queue, and transmitting the pointers of the IP packet trailer and the IP packet trailer to the header processing unit.

3. The packet forwarding system as claimed in claim 2, wherein the controller, if the pointer of the IP packet trailer connected to the IP packet header is re-transmitted from the header processing unit, reads the IP packet trailer connected to the IP packet header from a buffer corresponding to the pointer of the IP packet trailer, and transmits the IP packet trailer to the output unit.

4. The packet forward system as claimed in claim 2, wherein the controller verifies whether a different IP packet trailer connected to the IP packet trailer exists by using the buffer attribute information corresponding to the pointer of the IP packet trailer, and, if the different IP packet trailer exists, reading and transmitting the different IP packet trailer to the output unit.

5. The packet forwarding system as claimed in claim 2, wherein the buffer attribute information includes a front pointer of a front buffer connected to a front of the buffer and a rear pointer of a rear buffer connected

to a rear of the buffer, and information on whether a different IP packet trailer connected after the IP packet trailer, exists.

6. A packet forwarding method, comprising:

inputting first data in first units of transmission;

a packet memory management step of generating the first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out and sending a pointer of an IP packet header and a pointer of an IP packet trailer connected to the IP packet header;

a header processing step of deciding a packet classification and a transmission destination by using the IP packet header, and re-transmitting to the packet memory management step the pointer of the IP packet trailer connected to the IP packet header; and

an output step for dividing the IP packet trailer read from the packet memory management step into second data in second units of transmission based on the pointer of the IP packet header transmitted from the header processing step and the pointer of the IP packet trailer connected to the IP packet header, and outputting the second data to a channel.

7. The packet forwarding method as claimed in claim 6, wherein the packet memory management step includes steps of:

assembling the first data into the IP packet;

loading the IP packet into plural buffers, the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header;

reading the pointers of the IP packet header and the IP packet trailer connected to the IP packet header according to a transmission order, and transmitting the pointers of the IP packet trailer and the IP packet trailer to the header processing step.

8. The packet forwarding method as claimed in claim 7, wherein the packet memory management step further includes a step of, if the pointer of the IP packet trailer connected to the IP packet header is re-transmitted from the header processing step, reading the IP packet trailer connected to the IP packet header from a buffer corresponding to the pointer of the IP packet trailer, and transmitting the IP packet trailer to the output step.

9. The packet forward method as claimed in claim 7, wherein the packet memory management step verifies whether a different IP packet trailer connected to the IP packet trailer exists by using the buffer attribute information corresponding to the pointer of the IP packet trailer, and, if the different trailer exists, reading and transmitting the different IP packet trailer to the output step.

10. The packet forwarding method as claimed in claim 7, wherein the buffer attribute information includes a front pointer of a front buffer

connected to a front of the buffer and a rear pointer of a rear buffer connected to a rear of the buffer, and information on whether the different IP packet trailer connected after the IP packet trailer exists.

11. The packet forwarding system as claimed in claim 1, wherein the first units of transmission are the same as the second units of transmission.

12. The packet forwarding method as claimed in claim 6, wherein the first units of transmission are the same as the second units of transmission.